

How to use the resource

Desmos is a user friendly online graphing calculator. When you launch the Calculator you can graph functions, plot table of data, evaluate equations, explore transformations and much more for free. When you launch the calculator (big red button at the homepage www.desmos.com) on a graph will appear with a calculator portion on the bottom and a column to the left where you can insert functions (expressions) and tables. These expressions will be plotted on the graph to the right of the screen as you type. You can zoom in or out and click anywhere on the plot to find coordinate points. This helps when finding intersections of two or more plots or finding the roots. You can also solve equations using the column to the left and the functions button. Once you press the functions button there will be three tabs, trig, calc and misc with a number of cool options like the sum button or derivative. Finally the top left button (looks like three lines on top of each other) will give you a list of pre-made graphs that are beneficial for explaining math concepts. Such as the slope intercept form for grade 9 math, where you can adjust the slope (m) and y-intercept (b) and observe what the graph does. If you go back to the homepage and scroll down you will see "staff picks: math examples" and "staff picks: creative art." Both have a number of graph examples that could be used in math lessons to explain a concept or engage a class in a creative art plot. You can also create an account which will allow you to print and save you plots. There is a help button in the top right corner which allows you to access the Desmos user guide as well as how to videos. In addition the windows settings button found on the top right corner gives you the ability to change grid lines, showing axes and labels, domain, range, projector mode and trig settings.

Why the resource is useful

In every branch of high school math there are several specific requirements that say "Using graphing technology" or "using a variety of tools including...graphing technology..." Most teachers fulfil these requirements by bringing graphing calculators into the classroom. This issue with this is in the nature of these machines. They are not used often enough to have the students comfortable with them, and they are not intuitive to use. Most of the class is spent re-learning how to operate them. Usually, by the time the class is complete the majority of students have accomplished little and the learning goals are rarely met. Desmos offers a perfect alternative.

Desmos is an effective tool for both teachers and students. Teachers can use Desmos during a lesson, group activities or independent work. Being able to plot functions quickly to show the students how they look, and also to check if your roots and intersection points are correct. Rather than using the long process of table of values and plotting by hand, you can plot multiple functions with ease. Students can use Desmos as well, to check their work and visually see their problem. It's a user friendly resource that will make math more fun and relative. With all the pre-made plots you can explain concepts or engage students with art math plots and all the functions required to make it.

There is a free Desmos App for iPads which uses an almost identical interface as the online program. Its capabilities are equivalent to the online version and any difference in performance is negligible if at all there. The free app makes Desmos perfect for any school that has class set of iPads. It could, and should, replace the use of traditional graphing

calculators to enhance student learning. Both the app and online version allow plots to be shared through email (as long as a user account is created - also free), which means teachers can collect digital copies of the work their student complete using the program or send specific examples to their students to access later. Desmos' intuitive design and easy to use interface makes it a perfect technological tool for both students and teachers to enhance their learning experience.